



## FIG. 1

**Performance Range Criteria**

| <b>Performance<br/>Range</b> | <b>Minimum Breakaway Torque<br/>(Inch-pounds)</b> |
|------------------------------|---|
| Class 10                     | 410,000   |
| Class 20                     | 630,000   |
| Class 30                     | 903,000   |
| Class 40                     | 990,000   |
| Class 50                     | 1,350,000   |
| Class 60                     | 1,950,000   |
| Class 70                     | 2,450,000   |
| Class 80                     | 3,200,000   |
| Class 90                     | 3,800,000   |
| Class 100                    | 4,400,000   |
| Class 110                    | 5,100,000   |
| Class 120                    | 5,900,000   |

FIG. 2

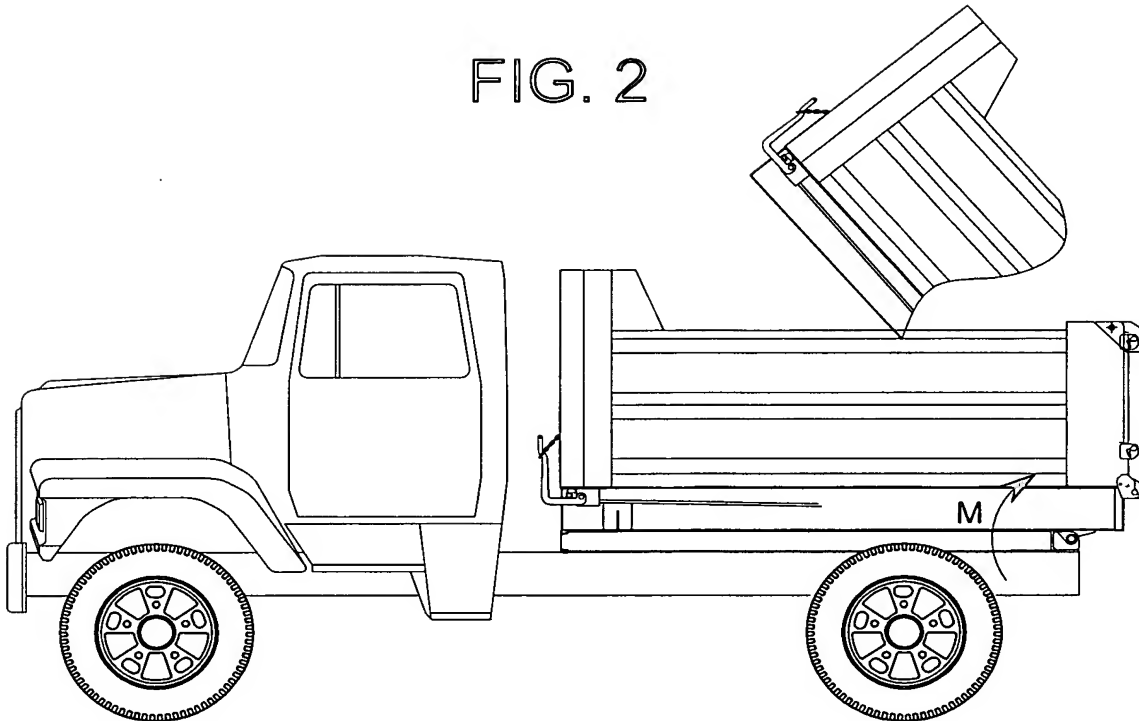


FIG. 3

NTEA CLASSMINIMUM MOMENT (M)

BREAK AWAY TORQUE (IN-LB)

|     |           |
|-----|-----------|
| 10  | 410,000   |
| 20  | 630,000   |
| 30  | 903,000   |
| 40  | 990,000   |
| 50  | 1,350,000 |
| 60  | 1,950,000 |
| 70  | 2,450,000 |
| 80  | 3,200,000 |
| 90  | 3,800,000 |
| 100 | 4,400,000 |
| 110 | 5,100,000 |
| 120 | 5,900,000 |

FIG. 4B

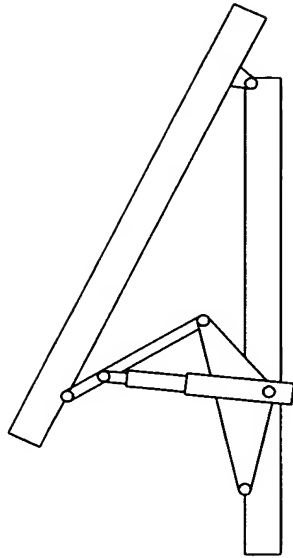


FIG. 4D

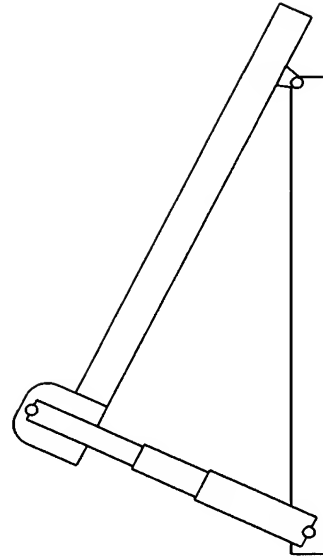


FIG. 4A

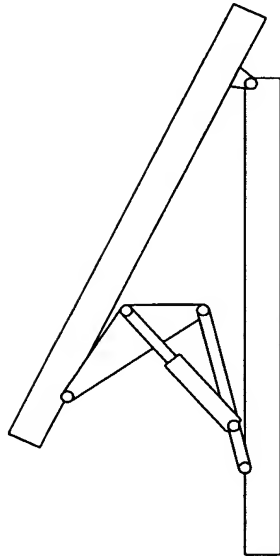


FIG. 4C

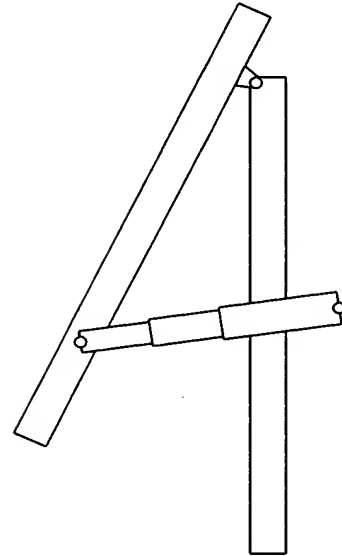


FIG. 4F

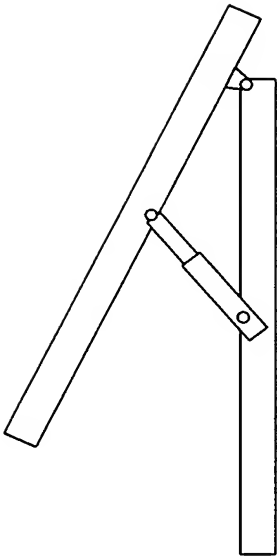


FIG. 4H

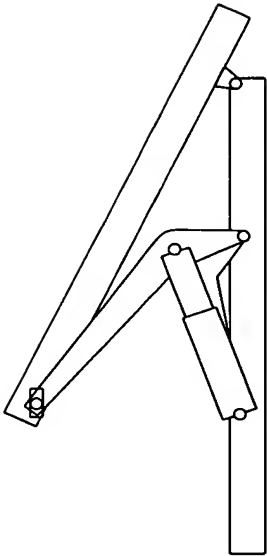


FIG. 4E

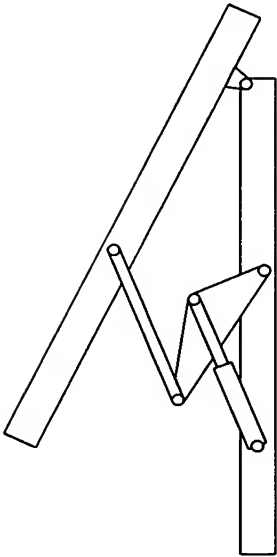


FIG. 4G

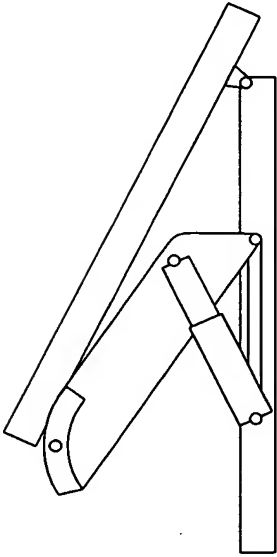


FIG. 4I

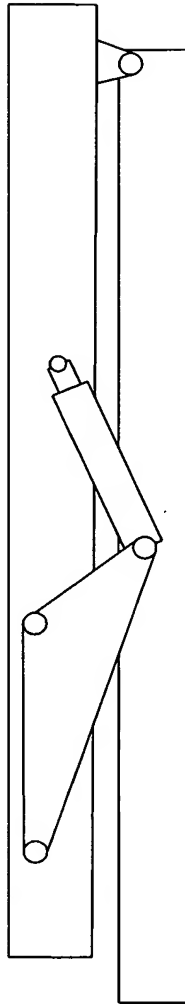
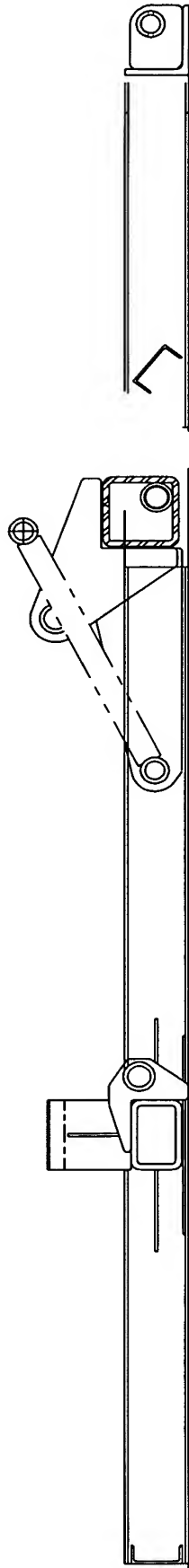


FIG. 5



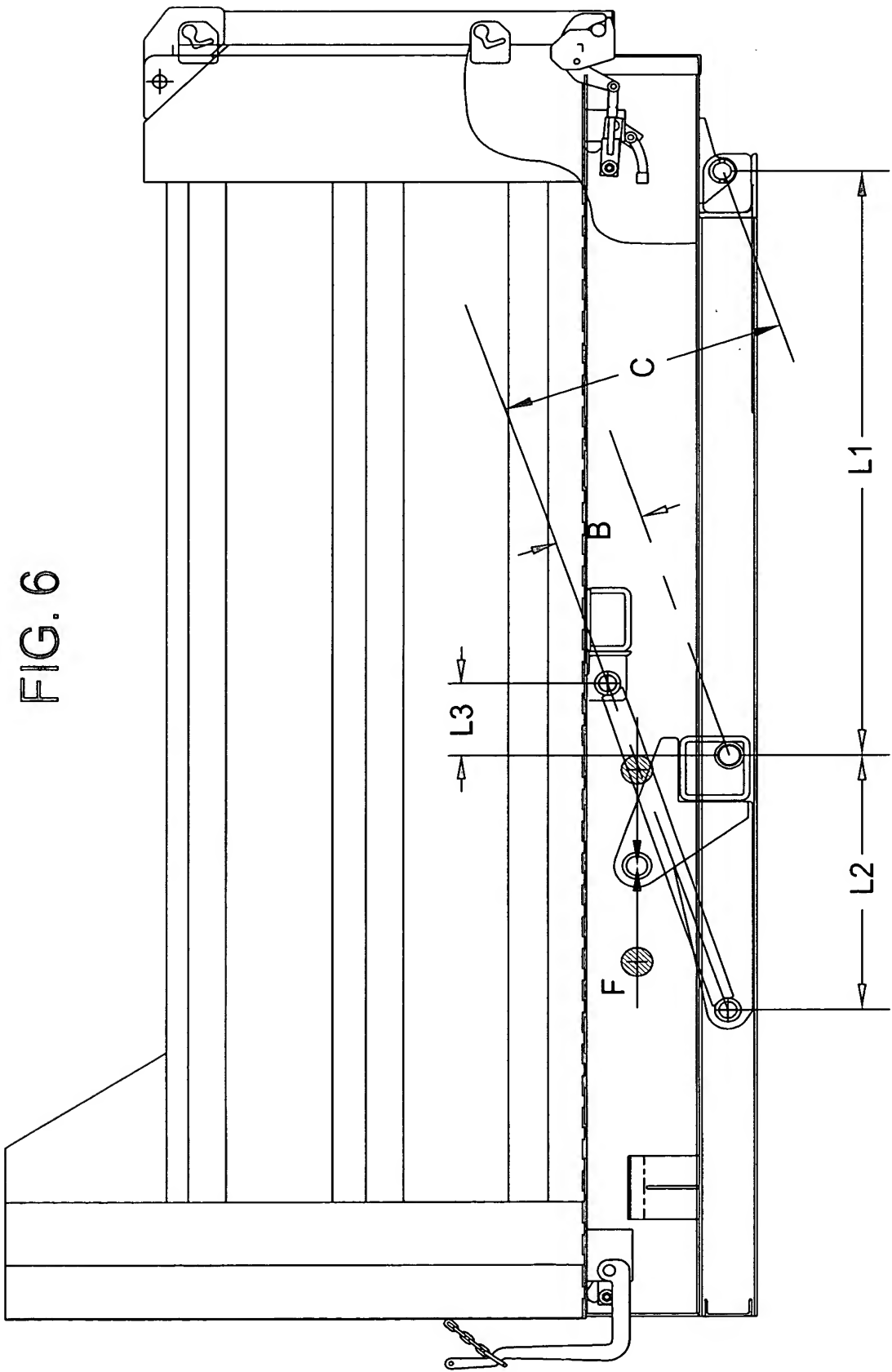


FIG. 7

## Geometry

| L1 | L2 | B      | C      | C/B  | L3     | F       |
|----|----|--------|--------|------|--------|---------|
| 42 | 24 | 10.336 | 27.672 | 2.68 | -2.00  | 91,767  |
| 42 | 27 | 12.288 | 30.681 | 2.50 | -6.50  | 98,399  |
| 42 | 30 | 14.325 | 33.687 | 2.35 | -10.75 | 104,474 |
| 47 | 24 | 8.998  | 25.824 | 2.87 | 2.00   | 85,605  |
| 47 | 27 | 10.78  | 28.781 | 2.67 | -2.91  | 92,022  |
| 47 | 30 | 12.659 | 31.756 | 2.51 | -7.50  | 97,938  |
| 50 | 24 | 8.379  | 25.016 | 2.99 | 4.25   | 82,291  |
| 50 | 27 | 10.027 | 27.809 | 2.77 | -0.75  | 88,585  |
| 50 | 30 | 11.697 | 30.435 | 2.60 | -5.25  | 94,423  |
| 55 | 21 | 6.323  | 21.984 | 3.48 | 12.50  | 70,663  |
| 55 | 24 | 7.78   | 24.756 | 3.18 | 6.75   | 77,210  |
| 60 | 21 | 5.677  | 20.962 | 3.69 | 16.75  | 66,537  |
| 60 | 24 | 6.975  | 23.527 | 3.37 | 10.75  | 72,837  |



FIG. 8

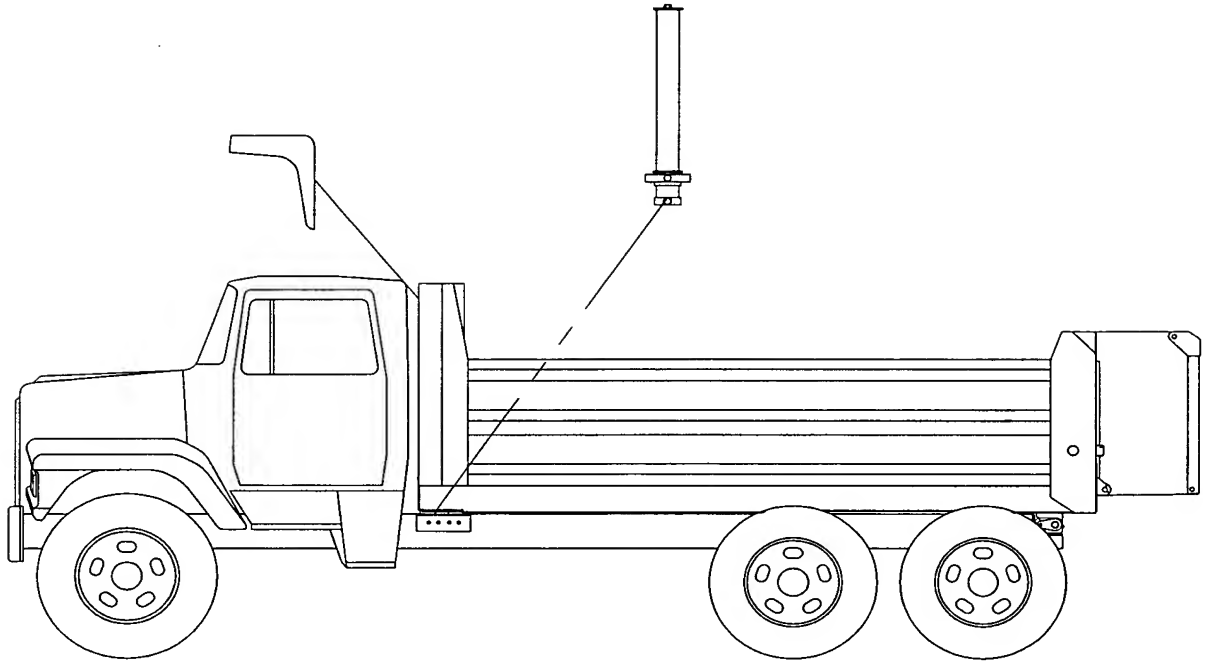
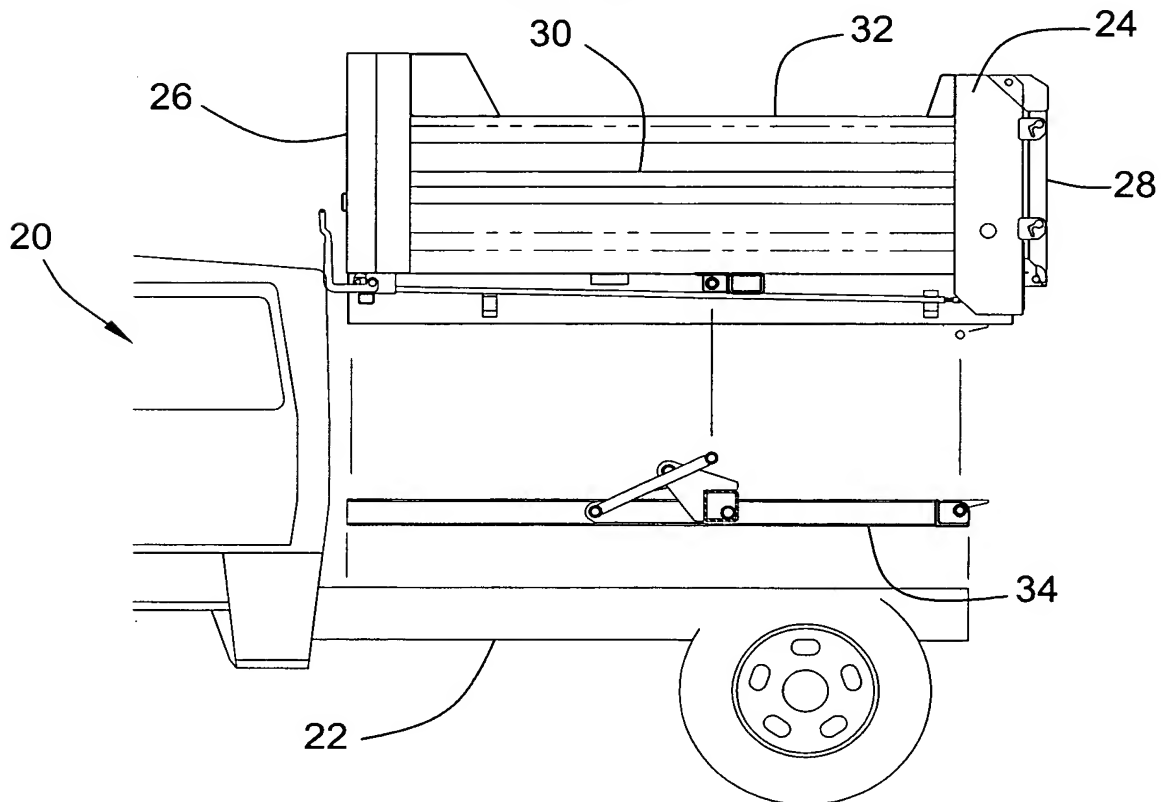
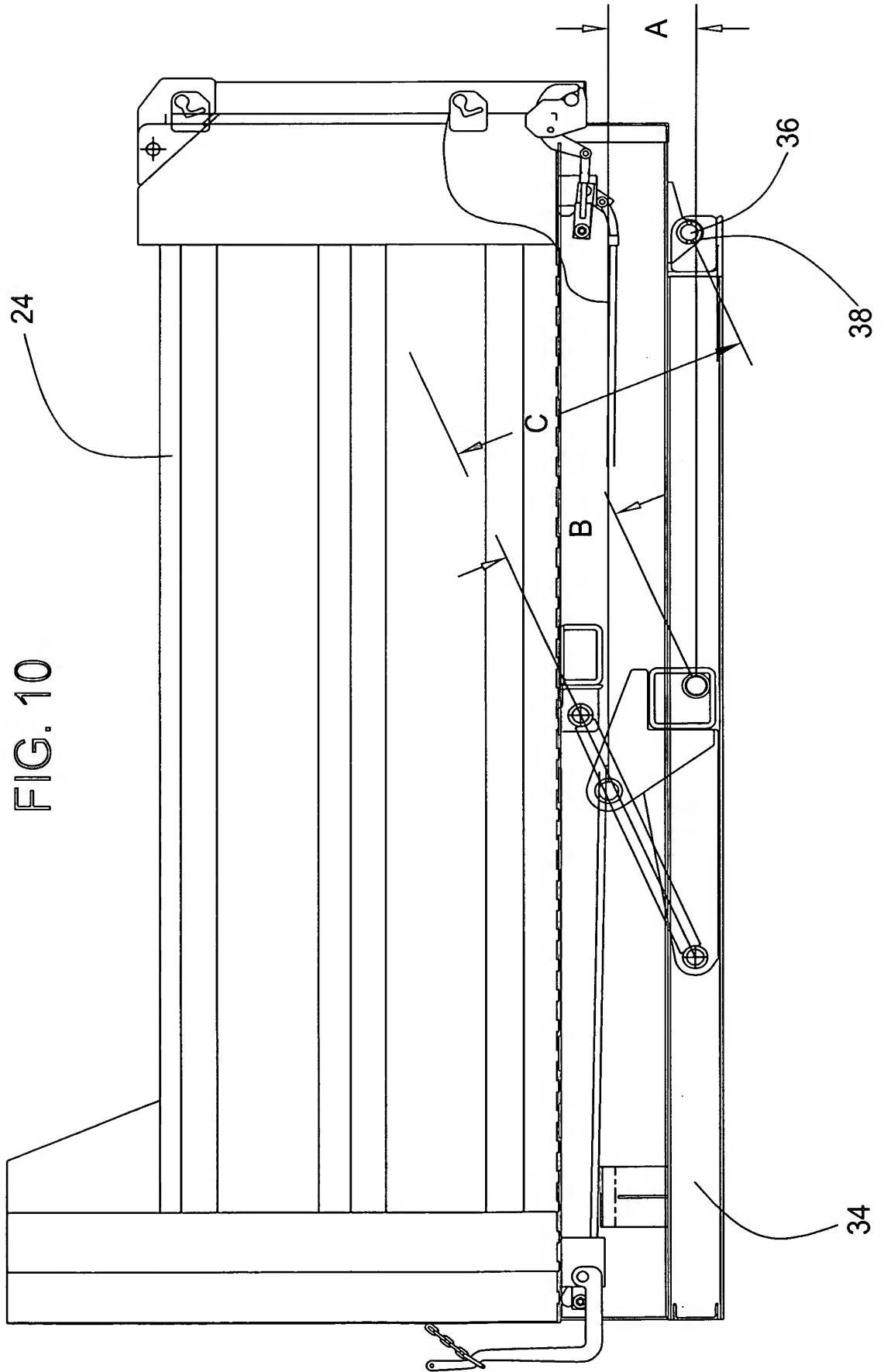


FIG. 9





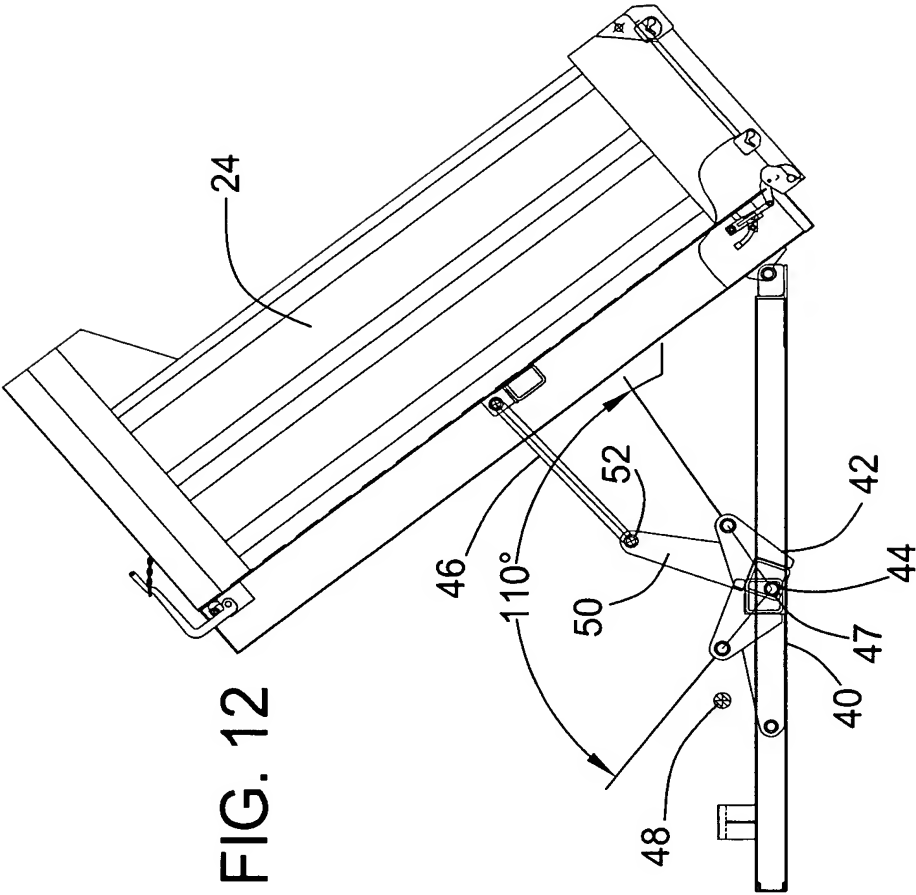


FIG. 11

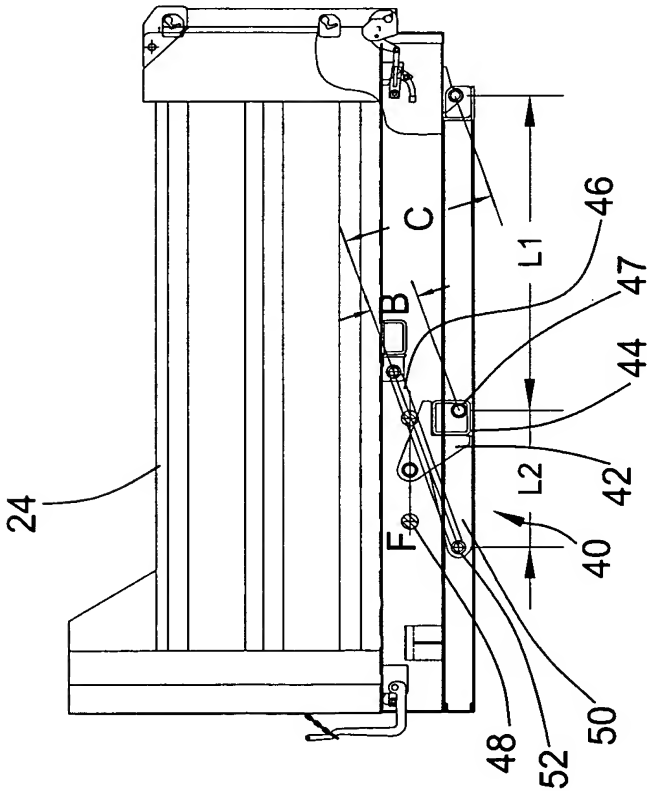


FIG. 13  
MOMENT DIAGRAM - 10' BODY

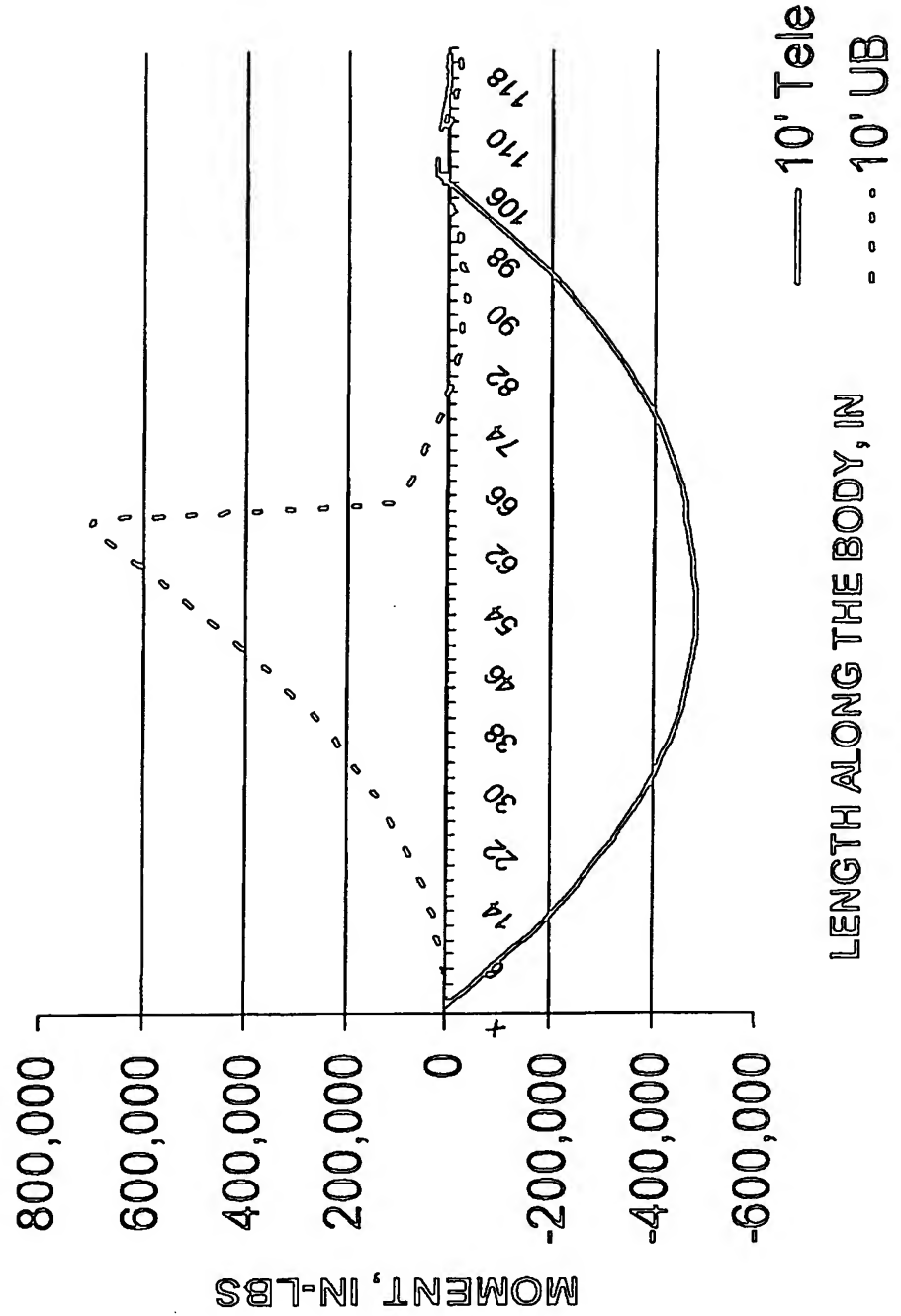
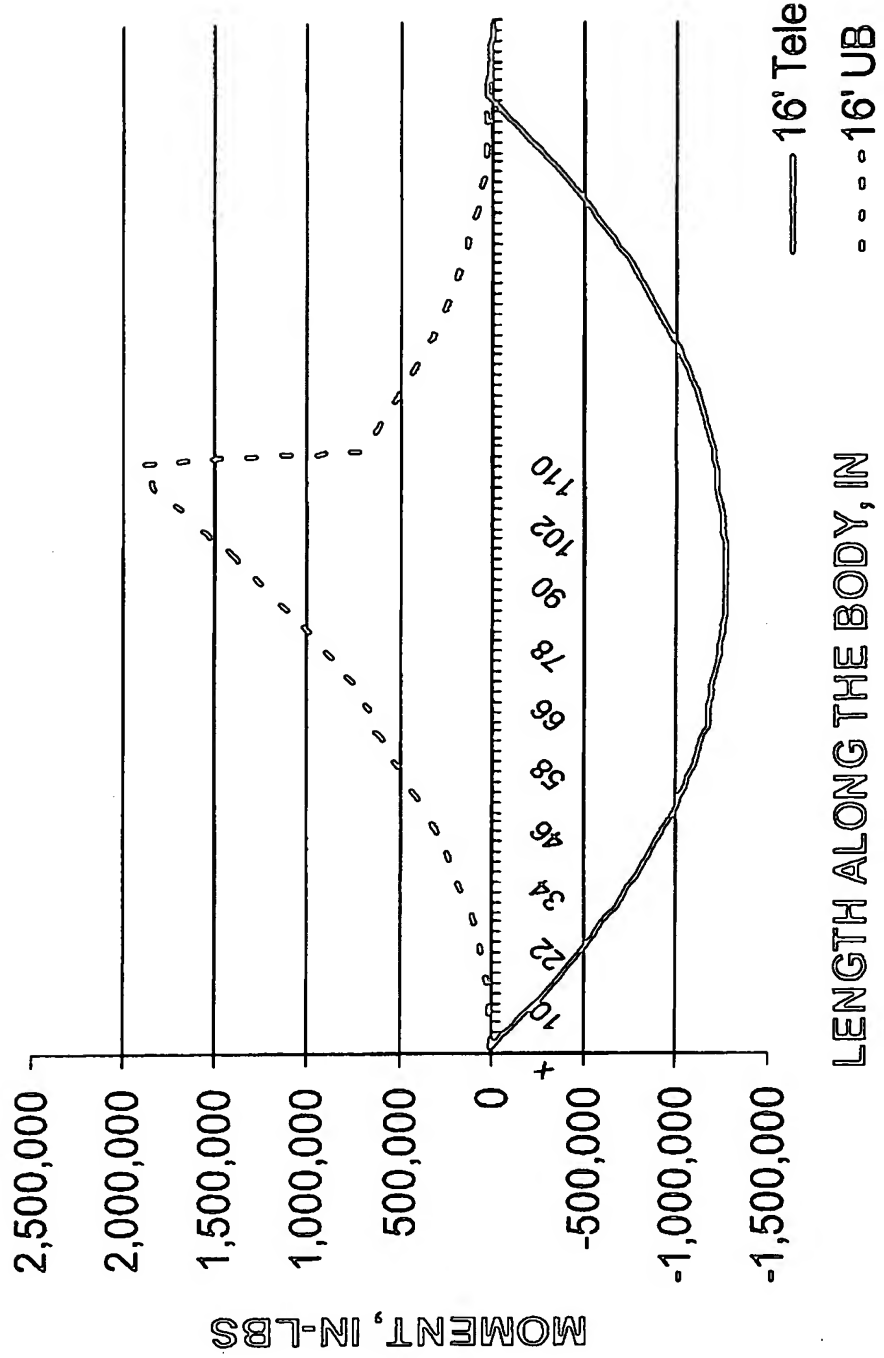


FIG. 14  
MOMENT DIAGRAM - 16' BODY



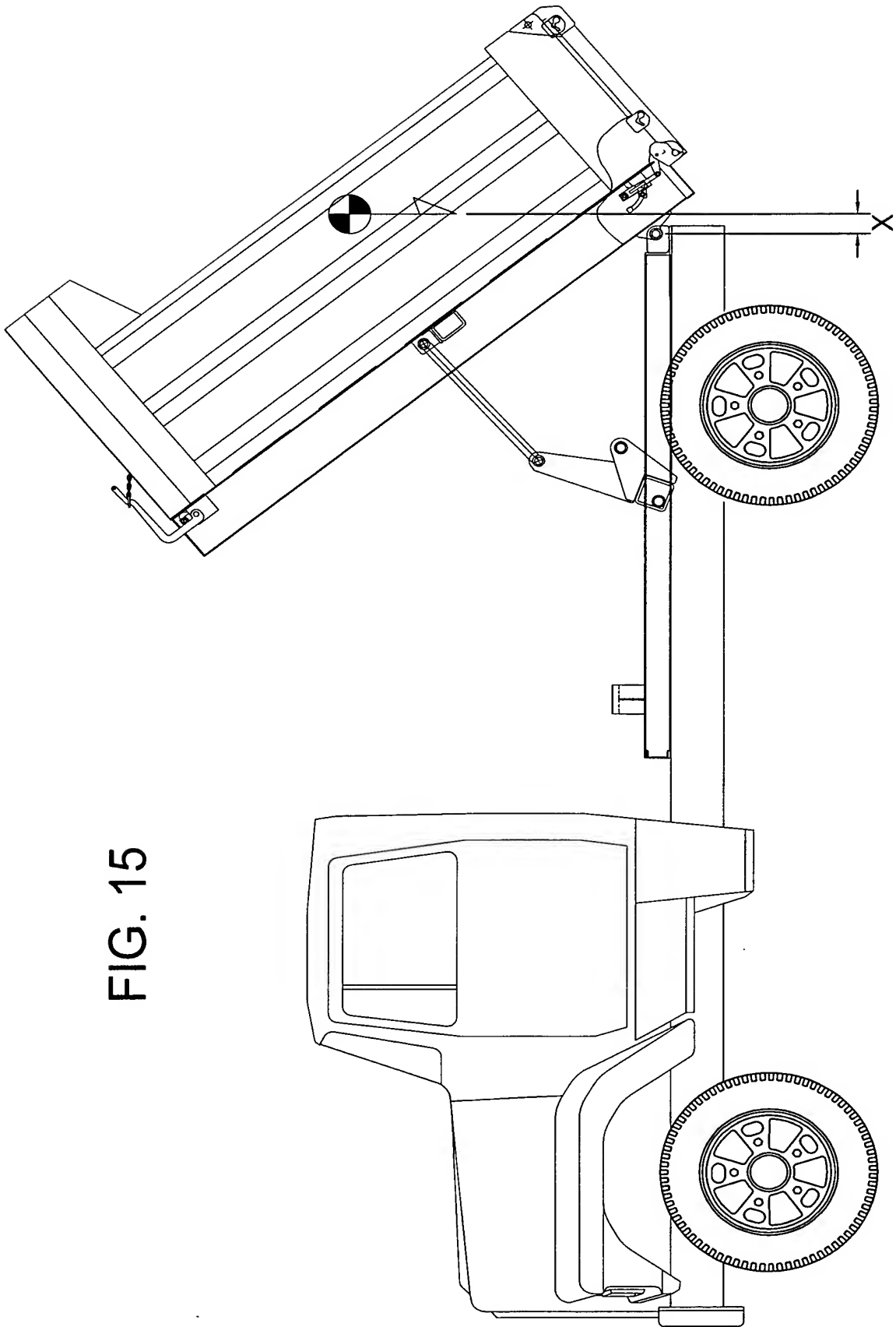


FIG. 16

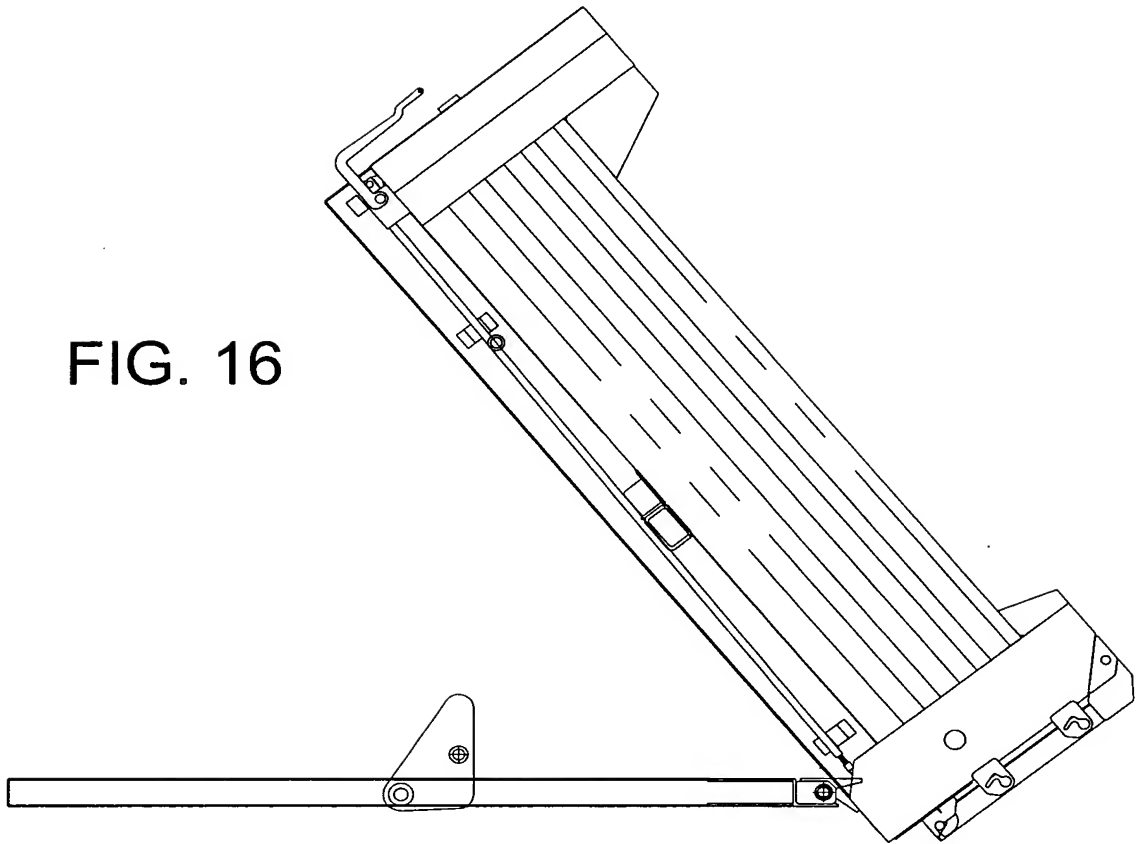


FIG. 17

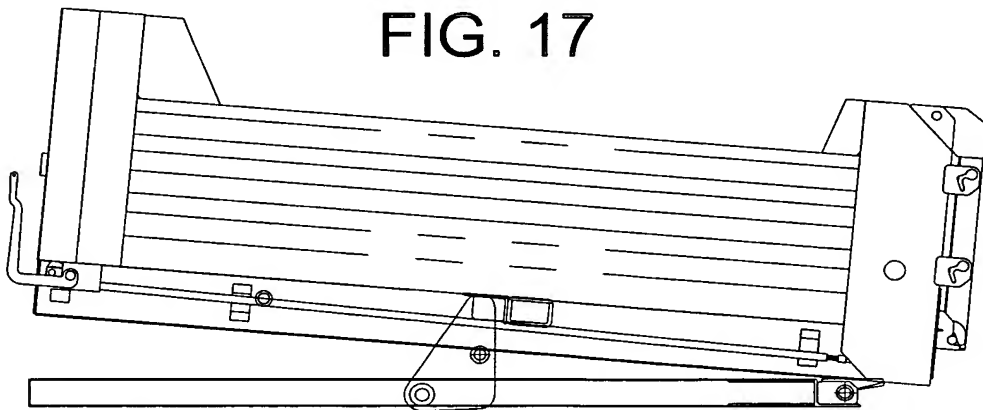


FIG. 18

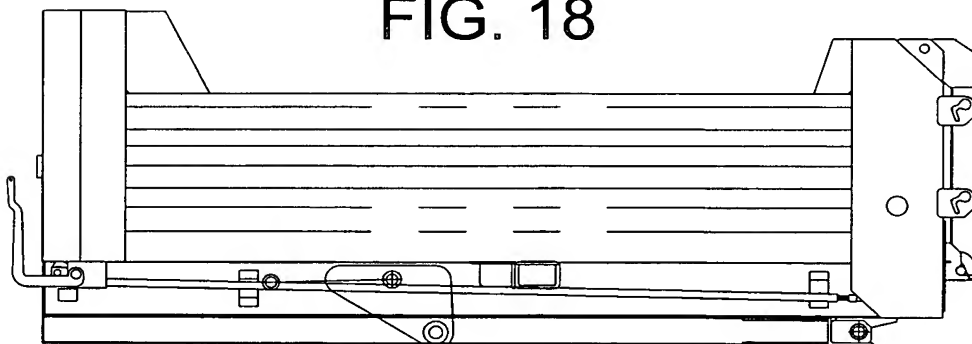


FIG. 19

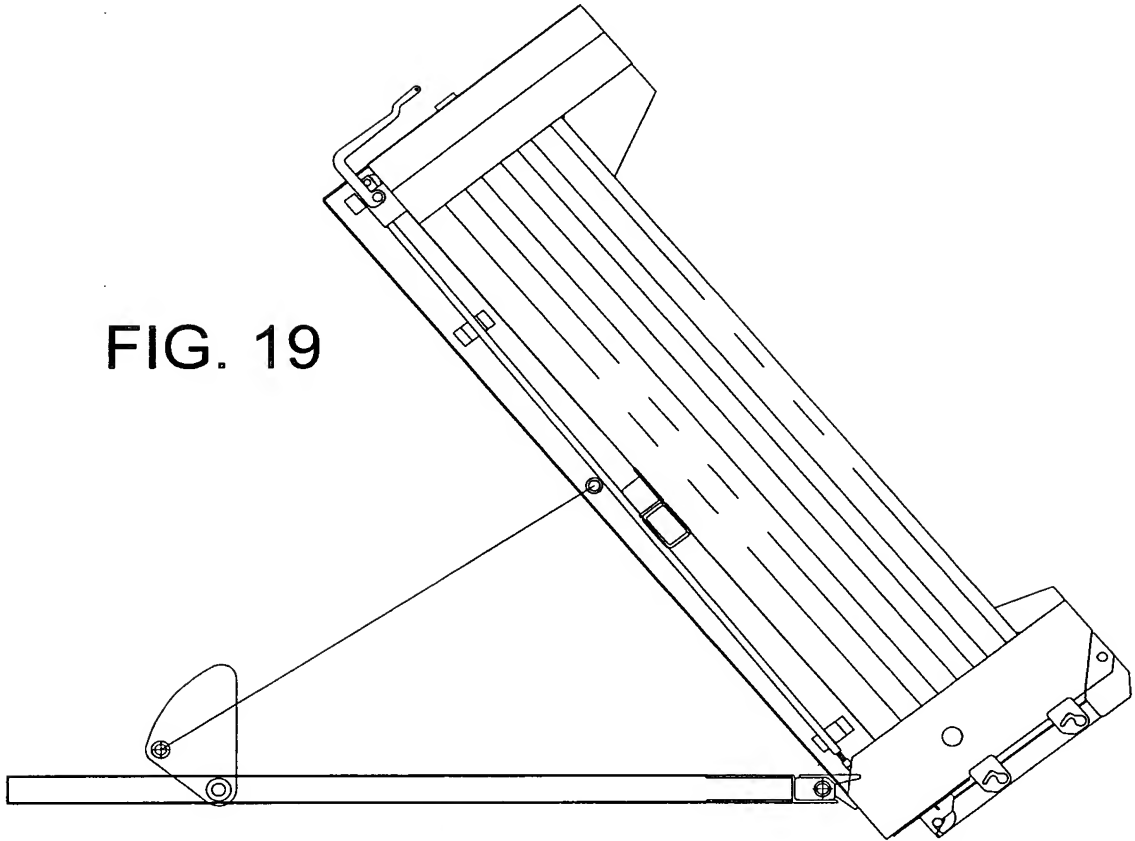


FIG. 20

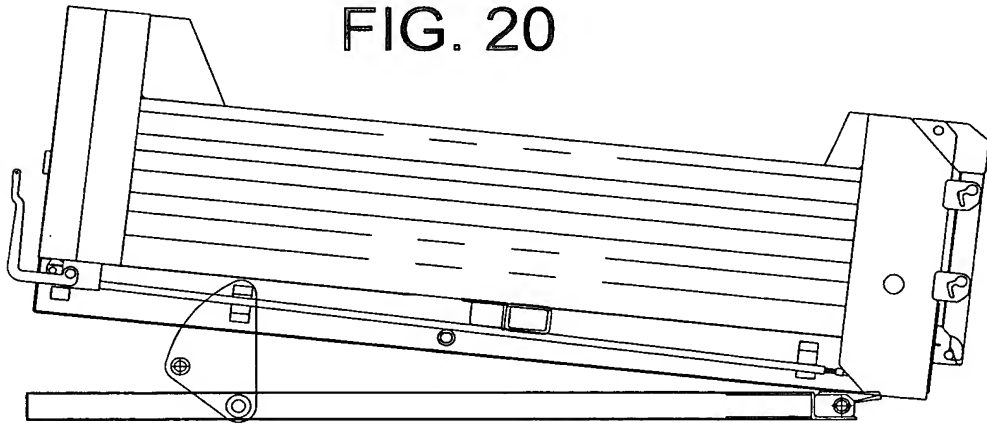


FIG. 21

